A METHOD FOR PRESERVING THE SPORES OF HYMENOMYCETES.*

By Dr. C. O. HARZ.

In studying and making a collection of the *Hymenomycetes* the preservation of spore preparations on paper is everywhere enjoined.

Formerly I used a very simple method for colored spores. I allowed them to fall upon any convenient white paper, a process which required from one to two hours up to a half or an entire day, according to the object. After the removal of the fungus I allowed the spores to lie a short time in the air in order to become dry, when I spread a solution of Canada balsam in absolute alcohol, on the back side of the paper, taking care that the spore preparation should not be overflowed by a too copious amount of the fluid. In this manner the preservation or fixing of the spores is accomplished simply and quickly.

I met with difficulties in case of colorless spores, because it is always hard to obtain suitable, well-glazed colored paper whose coloring material is not soluble in alcohol.

Herpell attempted to remove the difficulty by the application of ether, mastix, etc., but I was not always successful in obtaining satisfactory preparations of white spores in this way.

I have successfully tested the following method for two years: Dissolve one part Canada balsam in four parts turpentine oil, warming them gently over a water bath or free flame. Spores of all colors, as well as colorless ones, can be quickly fixed upon any convenient white or colored paper with this solution.

For colored spores I take any smooth, wood-free, white writing paper, of different grades; for white, relatively colorless spores, any convenient glazed paper can be used. Blue and black are specially adapted to the purpose, but yellow, red, green, and other colors of glazed papers also furnish beautiful preparations.

The application of the above solution is very simple; it should be spread thinly on the back side of the paper on which the spores are scattered, with a soft brush, and should not be spread on so thickly as to overflow the spores. In from two to four days the preparations are so far dried out that they can be safely kept between papers. They become quite dry (that is, so that the finger will not rub them off) in four to six weeks.

In some cases this method required some minor corrections.

(1) If the spores have been shed in unusual abundance, it is a good plan to repeat the application once after one or two days, or prepare for this special purpose a solution of two parts Canada balsam in five or six parts of turpentine oil.

(2) If the so-called white spores fall very sparingly on the paper, I

* Translated from *Botanisches Centralblatt*, 1889, page 78, by E. A. Southworth.

use a solution of one part Canada balsam in from six to eight parts of turpentine oil.

It is perfectly self-evident that any other balsam soluble in turpentine oil, *i. e.*, turpentine, or a resin soluble in it, will answer the same purpose. Any other volatile oil can also be substituted for turpentine oil.

A DISEASE OF WHITE FIR.*

By Dr. HARTIG.

A disease of the white fir, which caused very great injuries in the Bavarian woods, was discovered by the author, and shows itself in the dying of the bark of younger or older twigs and branches, often for over a hand's length. As a rule, the dying extends over the entire circumference of the twig, and in consequence the parts of the plants situated above this point die in a few years. More rarely the disease is confined to one side of the twig, and does not progress the second year, but an outgrowth occurs at the edge of the dead place. In the dead bark there develop numerous pycnidia, rarely larger than the head of a pin, which rupture the superimposed cork layer. Within the pycnidia arise numerous small, spindle shaped gonidia, which germinate readily. Unfortunately, an acigerous fruiting form has not been found after several years of observations and cultures. To be sure *Peziza calycina* almost constantly produced a luxuriant formation of Apothecia in the immediate neighborhood, yet the absolute proof of its connection with the pycnidial form was impossible. Until it can be perfectly known the author has given this fungus the name *Phoma abietina, n. sp.*

NOTES.

By B. T. GALLOWAY.

PREVENTION OF SMUT.

In the first number of THE JOURNAL† we gave a brief review of a paper published in the *Journal of the Royal Agricultural Society* of England by J. L Jensen on "The Propagation and Prevention of Smut in Oats and Barley." The interest shown in this paper has prompted us to publish a description of Mr. Jensen's method of treating the grain, and it is hoped that the suggestions made will enable the experiment stations to test the remedy. Mr. Jensen says:

> We have seen that smut can be prevented by dipping the grain in heated water. * * * The grain to be dipped is placed in a shallow cylindrical basket about 12 inches deep, lined with coarse canvas, and provided with a cover made by stretching the canvas over a ring of such a diameter as will pass inside the mouth of the basket.

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* Translated from *Botanisches Centralblatt* No. 3, p. 78, 1889, by E. A. Southworth.

† Page 42.